

## ABSTRACT

A reception device according to the present invention receives a transmission frame including a synchronization symbol string, having a synchronization symbol repeated multiple times, inserted before a data symbol string. The synchronization symbol is obtained by synthesizing a plurality of sub band symbols which are mutually orthogonal and having different carrier frequencies. The carrier frequencies of the sub band symbols are located at an equal predetermined frequency interval. The synchronization symbol includes a repeated synchronization pattern. The reception device detects a rough carrier frequency error from a phase difference of a synchronization pattern correlation value to correct the frequency, and then detects a residual frequency error from an inter-symbol phase difference of each sub band to correct the frequency. The reception device detects a sampling clock frequency error from an inter-sub band phase difference to correct the frequency. Thus, the demodulation error of the data symbol is reduced.